CLAIMS

What is claimed is:

1.	A method for dithering a desired signal having a frequency band, the method comprising:

generating a noise signal;

amplifying the noise signal;

filtering the amplified noise signal, so as to prevent that noise signal from adversely affecting the frequency band of the desired signal; and

diplexing the filtered noise signal with the desired signal to produce a signal+noise signal.

2.	The method of claim 1 further comprising:

providing the signal+noise signal to a noise-based application.

3.	The method of claim 2 wherein the noise-based application is a data conversion process.

4.	The method of claim 1 wherein the noise signal is thermal noise.

5.	The method of claim 1 wherein filtering the amplified noise signal includes low-pass filtering that noise signal.

6.	The method of claim 1 wherein diplexing the filtered noise signal with the desired signal to produce a signal+noise signal includes providing insertion loss associated with the desired signal and the noise signal of 1 dB or less.

7.	A method for dithering a desired signal having a frequency band, the method comprising:

generating a noise signal;

amplifying the noise signal; and

5   combining the amplified noise signal with the desired signal to produce a

6   signal+noise signal, wherein both the desired signal and the noise signal

7   experience insertion loss of 3 dB or less.

1   8.   The method of claim 7 wherein amplifying the noise signal further includes:

2   filtering the noise signal, so as to prevent the noise signal from adversely affecting

3   the frequency band of the desired signal.

1   9.   The method of claim 8 wherein filtering the noise signal includes low-pass

2   filtering that noise signal.

1   10.   The method of claim 7 wherein combining the amplified noise signal with

2   the desired signal further includes combining a second noise signal, and the desired signal

3   + noise signal includes the second noise signal.

1   11.   The method of claim 7 further comprising:

2   providing the signal+noise signal to a noise-based application.

1   12.   The method of claim 11 wherein the noise-based application is a data

2   conversion process.

1   13.   The method of claim 7 wherein the noise signal is thermal noise.

1   14.   The method of claim 7 wherein the insertion loss experienced by the noise

2   signal is less than 1 dB.

1   15.   A self-contained dithering device comprising:

2   a noise source adapted to generate a noise signal;

3   an amplification stage adapted to amplify the noise signal; and

4   a diplexer adapted to diplex the filtered noise signal with the desired signal to

5   produce a signal+noise signal that can be used in a data conversion process.

1   16.   The device of claim 15 wherein the amplification stage is further adapted to

2 filter the noise signal, so as to prevent that noise signal from adversely affecting the

3 frequency band of the desired signal.

1   17.   The device of claim 15 wherein the amplification stage further includes one

2 or more active low-pass filters adapted to filter the noise signal.

1   18.   The device of claim 15 wherein the noise signal is thermal noise.

1   19.   The device of claim 15 wherein the diplexer provides an insertion loss

2 associated with the noise signal that is 1 dB or less.

1   20.   The device of claim 15 wherein the device is contained in a package having

2 a power input, a desired signal input, a signal+noise output, and a common.